

**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

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**University Examinations 2014/2015**

THIRD YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN FOOD SCIENCE AND TECHNOLOGY

**AFS 2315: FOOD PROCESSING PLANT LAYOUT AND DESIGN**

**DATE: APRIL 2015 TIME: 2 HOURS**

**INSTRUCTIONS:** *Answer question* ***one*** *and any other* ***two*** *questions*

**QUESTION ONE (30 MARKS)**

1. Briefly describe the food process plant design specifications (6 Marks)
2. Describe the food process plant design principles including:
3. Principle of material flow (3 Marks)
4. Sanitation design (3 Marks)
5. Explain the steps involved in process flow chart for design (8 Marks)
6. Describe the following process plant utilities
7. Process water/steam (4 Marks)
8. Plant effluent disposal (2 Marks)
9. Describe the factors to consider when determining the plant size (4 Marks)

**QUESTION TWO (20 MARKS)**

Under food process plant layout, discuss the following:

1. Criteria for a good plant layout (4 Marks)
2. Advantages of a good plant layout (4 Marks)
3. Process and fixed-position layout types (12 Marks)

**QUESTION THREE (20 MARKS)**

Discuss the plant layout flow patterns (20 Marks)

**QUESTION FOUR (20 MARKS)**

Describe the factors to consider in space determination during plant layout design (20 Marks)